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Sulphur Poisoning.

By F. T. HARVEY, F.R.C.V.S., St. Columb.

Sulphur poisoning has been observed in horses and cattle from time to time, the result of incautious and unnecessary use by laymen. The latter give it freely either alone, or in combination with other irritants, such as nitrate of potash, in all sorts of diseases and conditions of the animal body, and sometimes without any obvious reason at all. A small holder gave the first beast he had owned—a newly-calved heifer—eight ounces of sulphur, as he had been told the milk might run more freely by so doing. Although in apparently good health at the time of the dosing, the poor animal died from acute enteritis within forty-eight hours. Sulphur is frequently added to other purgatives with disastrous results, especially when given with mag. sulph. and sodium chloride in red-water. This combination some time since killed a cow affected with piro-plasmosis, and quite recently two beasts affected with this disease died from a similar cause (acute enteritis). A few months ago, a mare was seen in great pain and somewhat flatulent. It was her first attack of colic and her health had always been good. She had had her one and only dose of sulphur the previous day. There is no doubt that this substance should be used internally with some caution and yet it is regarded by the laity as harmless.

TOXIC EFFECTS ON PIGS.

Nineteen pigs, in good condition and about eight weeks old, were given, for no very obvious reason, sulphur and somebody's pig powder in the food mornings and evenings, for five successive feedings. As the pigs were then seen to be amiss, the sulphur mixture was stopped. They buried themselves in the straw, drank water freely, fed sparingly and became constipated. The owner described the pigs as being "too full." He treated them for stoppage, giving castor oil. The first death occurred on the fifth day following the first dose of sulphur, by the seventh day nine were dead, and on the fourteenth day five only survived; these have remained in good health. It was found that fourteen ounces of sulphur had been given morning and evening. Contrary to what is usually stated to occur in sulphur poisoning, there was marked in-action of the bowels, fæces tending to accumulate in the large gut. There was no vomiting. On palpating the abdomen great pain was manifested and, in the acute cases, meteorism. The clinical picture towards the end in each case was that of peritonitis.

Post-mortem Appearances.—These were quite interesting. The stomach and small intestines escaped material damage, but the gut behind the ileo-cœcal valve, and the liver, exhibited considerable change. Practically the whole serous covering of the large bowel was adherent and stuck to the serous surfaces with which it had relations, either parietal or visceral. Thus, on cutting down one opened direct into the lumen of the bowel and not into the peritoneal cavity. The serous coverings appeared like two pieces of gummed paper stuck together and so obliterating the peritoneal cavity. A part of the omentum was spread over parts of the large bowel, forming a protective layer. The free portion of the peritoneal cavity having contact with the coils of small intestine, stomach, etc., contained very little fluid and only a few shreds of coagulated lymph. Exudate was practically absent around the colon and cæcum, and large areas of the bowel wall here were found in a necrotic condition, having a dull greyish appearance. The sulphur had killed the bowel wall, but it had also killed or inhibited the bacteria within the bowel itself, so that no organismal invasion of the dead tissue had occurred. Phagocytosis seemed entirely in abeyance. The gut was more or less distended with gas and fæcal matter of varying consistency, emitting a sickening odour. The fæcal contents, when mixed with water and allowed to settle, showed a heavy deposit of sulphur. The liver was enlarged and presented a markedly black and white (piebald) appearance.

Discussion.—There does not appear to be any record of sulphur poisoning in pigs. Speaking generally, Lander states that, apart from the nervous effects, sulphur poisoning is characterised by the production of super-purgation and the attendant weakness and collapse. Also that in the intestines it is to a small extent converted into soluble and absorbable alkali sulphides and is further reduced to sulphuretted hydrogen, which is a very toxic substance. The chief points to be noted in the above cases are the small amount of damage to the stomach and intestines above the ileo-cæcal valve, and the very extensive injury to the tissues below, or behind it. The sulphur gradually collected in the large intestine, ultimately producing necrosis. With a single large dose, especially when given with other purgatives, an acute inflammation of the small intestine seems to develop. In the above pigs one saw large

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Some Functions of the Omentum.

By F. T. Harvey, F.R.C.V.S., St. Columb.

In the *post-mortems* on the pigs, mentioned in my article on Sulphur Poisoning, the important protective function of the omentum was beautifully shown. It was seen to have spread itself over a portion of the necrosed large bowel as if making a heroic, but futile effort to limit mischief, and itself becoming necrotic in the attempt. We sometimes find the omentum in strange situations, but we rarely stop to enquire why it is there or of its functions; and yet it doubtless plays a very important part in the repair of abdominal injuries or in the guarding of threatened, or weakened, centres within, or connected with, the abdominal cavity. Veterinary surgeons find it appearing in the cavity of the tunica vaginalis testis at the time of operating, or shortly after castration. Its appearance in this situation probably indicates that at some previous period the parts had required its help or protection. In two instances where the writer has met with the omentum, it appeared to have been caught by the testicle and thus a retreat into the abdomen was made impossible, notwithstanding that it could serve no useful purpose by remaining in the sac. On one occasion many years ago the omentum appeared while a colt was being operated on by a gelder. It was some hours before the case was seen and, as the exposed omentum seemed very vascular, a ligature was put on and the free ends of the latter, about six inches long, left uncut until after the omentum was divided. When this was done, the stump, with attached string, promptly passed into the abdomen and was seen no more. Nothing untoward happened and the horse lived for years, but in time became a shiverer. The incident indicates a possible danger in applying a ligature, or allowing any damaged omentum to remain in this situation. It is not often, however, that serious results follow protrusion of the omentum through the scrotal wound

In veterinary writings any allusion to the omentum usually has reference to its presence in hernial sacs, but human surgeons discuss its uses and abnormalities with some detail. "The omentum is of great surgical importance in the abdomen, in that it covers in and protects the viscera, and by its motility is able to apply itself to many a weak spot where perforation or infection might occur, and thereby guard the patient from serious inflammatory mischief."—*Manual of Surgery*, Rose and Carless.

Professor Rutherford Morison's description of the omentum is interesting—"A special protective agency

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areas of necrosed bowel, but no bacterial developments. The absence of serous effusion, fibrinous deposit, or purulent accumulation, was in keeping with the want of the reaction of inflammation—aperitonitis without inflammation, so to speak, or as someone graphically described a similar situation elsewhere, it appeared as if "Hamlet" had been placed on the stage without the Prince of Denmark. exists in the abdomen, but for which many abdominal diseases and operations would be attended by a much higher mortality than they are. The omentum, in addition to other uses, may be regarded as the 'abdominal policeman.' It travels about in the abdomen with considerable activity, and is attracted, by some sort of information, to neighbourhoods in which mischief is brewing. It may effect a radical cure of hernia, by blocking the hernial orifice with an omental plug. It surrounds, and adheres to, a recently reduced strangulated and damaged loop of intestine, and may keep it alive and prevent a leak. It is generally found in the neighbourhood of a diseased or inflamed appendix; by wrapping it up if gangrenous, or by locking up the pus from an appendix abscess, it may prevent general peritonitis. In a similar manner it may prevent the perforation of an ulcerating malignant growth, of a gastric ulcer, or the death of a damaged portion of bowel, or the perforation of a suppurating gall-bladder. When it is found covering and closely enveloping an ovarian cyst or a fibrous tumour of the uterus, even though not adherent, it is safe to assume that something wrong will be found in the tumour. Its effective mobility is shown by the fact, that, whether the lesion be in the diaphragmatic roof of the abdomen, or on the floor of the pelvis, there the omentum can and does find its way. Another function special to the omentum is an extraordinary capacity for the formation of new blood vessels. Wherever it adheres new blood vessels develop with great rapidity, and where the continued need for them arises they may reach a considerable size."—*Introduction to Surgery.*

In the case of the pigs previously described, the latter function of the omentum was entirely in abeyance, but the earlier guarding one was displayed.

The absorptive function of the great omentum was discussed in an "Annotation" in *The Lancet*, January 8th, 1921. It is said to contain no lymphatics. Ranvier described the groups of cells visible to the unaided eye in the omentum as *taches laiteuses* (milk spots). Wandering cells leave these spots and attack particles and bacteria, and return laden to the omentum. If the phagocytosis is successful, subsidence of action, or a state of repose is set up in the milk spots, but in the tubercle invasion there results an aggregation of tubercles.

It does not require a great stretch of the imagination in order to regard the omentum as a sort of glorified, movable, ribbon-like lymphatic gland, and occupying an intermediate position in structure and function between the spleen and lymphatic glands in general, having the function of the latter, but the form of a membrane and thus being in some way comparable to the choroid plexus of the central nervous system. The choroid plexus is a tissue intermediate between a gland with a duct and a ductless gland. It has an external secretion with an internal destination. It has more or less the form of a membrane being developed in an inverse manner to the usual structure of a gland. The plexus choroides is constantly on its

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Phosphorus Deficiency in Food a Cause of Disease.

(*Communicated.*)

For many years the cattle in certain parts of South Africa have been found liable to two diseases of the locomotor apparatus, known in the vernacular as stiff-sickness and lame-sickness. At one time these affections were regarded as identical, but later researches have shown that they are quite distinct.

Stiff-Sickness presents itself in more than one form; the animal suffers from laminitis with bony deposits around and above the phalanges; the patient walks with the back arched, takes short steps, and bears on the heels of the feet; there is also a separation of the digits which spread out. The fetlocks are enlarged and a growth of bone occurs in the region occupied by windgalls in the horse, also around the shank and coronets; other joints, such as the knee and hock, may be enlarged. The deformities of the joints, the thickening of the bones, distortion of the limbs, and softening of the bony substance have suggested a resemblance to osteo-malacia.

Lame-Sickness is not a disease of the bony structure but of the skeletal muscles, which shows itself by a peculiar gait—the animal waddles, takes short and laboured steps, the back being arched, while the body appears to sink between the fore-legs, the scapulæ rising to the top of, or even above the level of the withers; there is a plaiting of the hind legs, the animal frequently lies down and rises with difficulty; a quivering of the muscles of the shoulders, flanks and thighs is present, and finally the patient is unable to rise. The animal may lie in the ordinary position on the breast, or with the hind legs stretched out behind, or on its side with the head bent towards the ribs. In the latter position, if the head be straightened it snaps back like a spring. There is no loss of sensation, but paralysis of the tongue, pharynx, œsophagus and lower jaw may be present; when this is the case, if the head be shaken the upper and lower molar teeth rattle together. There are degrees of lame-sickness, varying from acute to mild; the acute cases may die in a few hours, but those less severe last for weeks if hand fed. There is no rise of body temperature in this disease, in fact the temperature may be subnormal. On *post-mortem* examination no definite lesions are present.

These two diseases may exist simultaneously on a farm, and for some time they were confused, but from the brief account of the symptoms given above, it will be seen that the structures involved in the morbid process are different in each.

Both of these diseases are associated with *pica*, and both are brought about by a deficiency of phosphorus in the food; at this point they separate. The symptoms of lame-sickness are produced by ptomaine poisoning, contracted in a search for mineral matter, those of stiff-sickness are due to a deficiency of mineral matter in the food in which lime and phosphorus play a part. The full story regarding stiff-sickness has not yet been completely worked out. That of lame-sickness has, and constitutes one of the romances of science: with it we shall now deal.

In June, 1920, Sir Arnold Theiler, K.C.M.G., Director of Veterinary Research, South Africa, and his co-workers,* published in the *Journal of the Department of Agriculture, Union of South Africa*, a communication on the *Cause and Prevention of Lamziekte*. In 1919 he had announced that the cause of lame-sickness had been discovered, and that it was a toxin derived from animal remains scattered on the pasturage. An intoxication theory had been put forward by him eight years previously, but at that time he associated it with the vegetation of the affected areas. In the 1920 paper he definitely stated that it was due to an organism, or a group of organisms, living on dead organic matter which formed a toxin, and that the symptoms were wholly referable to the toxin. Natural infection with the toxin is confined to cattle, though goats, ostriches and poultry occasionally become affected. but if the toxin be employed experimentally, all animals, doubtless even man, may be infected. Cattle obtain the toxin owing to pica, or depraved appetite, leading them in their search for mineral matter to consume rubbish and even decomposing animal matter. An animal infected with pica does not contract the disease by feeding on ordinary decomposing substances such as bones, hide or flesh, as the bacteria of decomposition are harmless. In order to contract lame-sickness, cattle must feed upon decaying remains *which have been infected by a special saprophyte which elaborates a toxin.*

The saprophyte is a spore-bearing organism infecting the soil, where it remains indefinitely if carcase material is available. If the soil is not infected, decomposing material lying on it is harmless if consumed. An infected animal taken into a clean area where the saprophyte does not exist, will carry the organism in its digestive canal and at its death infect the soil. The toxin is very powerful; it has been shown experimentally that with the laboratory product half a grain given to an animal weighing 600 lbs., will

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guard against deteterious substances such as bacteria, or poisons, appearing in its secretion. One of its prime functions therefore is prophylactic, and in this respect it has the advantage of the omentum: one prevents damage; the other repairs it. Either may fail in attaining its objective, and then we get a peritonitis in the one, or a disturbance of neurones in the other, as the case may be. In both instances a capsule has been dispensed with and the vascularisation is central, whereas it is always peripheral in the presence of a capsule. Any formation of the nature of a capsule would render the omentum useless as an abdominal sweeper or cleanser.

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produce the disease in less than a week. Under the conditions of natural infection a few ounces of highly putrid bones are sufficient. In experimental work an animal can be killed at will in from seventeen hours to ten days by varying the size of the dose; it is probable that the different varities of the disease witnessed in natural infection are largely a question of dose. Putrid material lying in the open can retain its toxicity for from six to twelve months. The toxin of lame-sickness is analogous to, but by no means identical with, the toxin of *B. botulinus*; it may be separated from the bacteria; the spores without the toxin are powerless to produce the disease. The toxin-producing organism plays no part in the work of ordinary putrefaction, but it finds in decomposing material the pabulum suitable to its growth and multiplication.

An animal dead from another disease, if allowed to undergo putrefaction on infected soil becomes infective; an animal dead of the disease and allowed to undergo putrefaction on uninfected soil infects its own tissues through the intestinal canal and becomes toxic. If a non-toxic carcass be placed in the vicinity of one which is toxic it is rendered toxin-producing, showing that infection can be transmitted over some considerable intervening space.

Obviously, the control of the disease lies in the direction of eliminating the toxin-forming organism by destroying its food supply, therefore no carcase should be allowed to lie on the soil, for any dead animal matter can serve as material for toxin production if the necessary organism is present.

The pathological condition known as *pica* is the cause of all the trouble; if there is no pica, there is no lame-sickness. Over large areas of South Africa cattle show a craving for bones; sheep show no such craving and are unaffected by stiff-sickness and lame-sickness. If the craving for bones be not satisfied, it leads to the ingestion of hide, flesh, coal, rags, even wire and tins. The domestic washing around the homestead may also be devoured.

If animals suffering from pica be given access to bones a "marked craver" will chew putrid material for hours; a batch of marked cravers may even be seen crowding around and consuming the rotten carcase of an animal. A sweet bone is devoured by an animal classified as a "mild craver," one which refuses a putrid bone. The authors in this way establish a system of determining the degree of craving, and describe the characteristic sound at the testing trough of animals engaged in crunching as "crackling mastication." This means of measuring the degree of pica was of the greatest use in determining which animals were the most liable to infection and also the influence of treatment; ultimately it became a method of enormous value in investigating the question of phosphorus deficiency.

If given access to bones free from toxin, be they sweet or putrid, animals the subject of lame-sickness may be cured. This constitutes what the authors describe as the bone paradox: "Bones kill and bones save."

A chemical examination of the hay from infected areas shows that during the period of the year when pica exists, very little phosphoric acid is found in it: during the non-pica season the content of phosphoric oxide in the hay is large, even seven times as high as that previously found. As the phosphorus in the grass diminishes, the bone-eating increases. If an assimilable form of phosphorus be given to bone-eaters, the pica is removed; bone-meal, for instance, given in quantities of four ounces daily, reduces the craving to zero in a month; if the bone-meal be withdrawn the pica returns.

The authors pay to the memory of DuncanHutcheon, the late Director of the Cape Veterinary Service and Minister of Agriculture, a well-merited reference to the views of this distinguished man, who was the first to investigate these diseases, and to employ bone-meal in their treatment. Hutcheon regarded the affections as due to a deficiency of lime and phosphorus in the diet, and supplied it artificially. In his day the cause of lame-sickness was unknown. The saprophyte and its toxin had not yet been dreamed of, but if the work of Theiler and his co-workers has been properly presented to the reader, it will be seen that what Hutcheon did, was to prevent the animal picking up infected bones on the pasturage, by supplying the substance of which it was in search.

The sequel to the story of 1920, as above related, appeared four years later, when Sir Arnold Theiler and his associates published an article in the *Journal of the Department of Agriculture, Union of South Africa*, May, 1924, entitled *Phosphorus in the Live Stock Industry*.

The four years of experimental enquiry which had been carried out since the previous publication had led to a revelation in the question of metabolism. The feeding of animals with the addition of assimilable phosphorus to the diet, originally intended to overcome pica, led to developments in our knowledge of nutrition, the importance of which so completely overshadowed the original enquiry, as to cause the authors to regard the dreaded pest of lame-sickness as a blessing in disguise. We cannot here follow in detail the results of their carefully planned feeding experiments, models of experimental accuracy, but they led to the confirmation of the previous tentative conclusions that lame-sickness and stiff-sickness could be cured and prevented by the administration of an assimilable form of phosphorus, preferably in the form of bone meal. It is then shown how this phosphorus affects the questions of growth, condition and milk yield. The results are striking and a high tribute to the indefatigable energy and consummate technical ability of Sir Arnold Theiler and his fellow workers.

The paper on Phosphorus in Live Stock Industry, shows in a graphic manner and by photographs, how the growth and development of healthy animals is affected by a deficiency or sufficiency of phosphates, also the effect on the milk supply. It shows how the body weight may be steadily increased, nutrition improved and pica prevented.

In all countries where a deficiency of phosphates in the soil exists, the conclusions arrived at by these observers will prove a national asset and a perpetual monument to veterinary science.

The Influence of Nutrition on the Incidence of Disease.

By Lieut.-Col. J. W. RAINEY, M.R.C.V.S., London.

When I first read Dr. Orr's paper on the influence of nutrition on the incidence of disease, my impression was that his reasoned exposition of so obvious a matter might be unnecessary.

The discussion on his paper, however, as reported in your issue of November 15th, has dispelled that impression.

The trend of modern scientific thought is undoubtedly in the direction of prevention as opposed to the cure of disease, and nutrition, just as indisputably, is one of the chief factors in the prevention of disease. Perhaps those veterinary practitioners who have a wide colonial and military experience are in the best position to assess at its true value the influence of defective nutrition on disease processes. The extraordinary susceptibility to glanders of animals debilitated by under-feeding over a long period, has been demonstrated in many campaigns, and never more clearly than in the operations in South-West Africa in the year 1915. Mange and other forms of parasitism similarly follow in the train of malnutrition. Trypanosomiasis in camels, which went far to destroy the mobility of the Turkish Army in Palestine, was kept in check in our army by measures of which adequate nutrition was not the least important. In Southern Viti Levu (the chief island of Fiji), in that area where the Wainibuka and the Wainimalo rivers unite to form the great Rewa river, there are extensive alluvial flats on which only one variety of grass grows, a tall soft panicum.

Three out of ten horses bred and reared on those flats develop osteoporosis which is unknown among Fiji horses bred in the foothills or other parts, where other and more various sorts of herbage are found.

In Bloemfontein in the year 1913, an outbreak of fatal paraplegia occurred among the transport mules of the Sanitary Branch of the camp.

Investigation showed that the mules were being, either from ignorance or cupidity—probably the latter—fed almost entirely on an inferior chaff. The outbreak ceased within a week of putting the animals on to a liberal ration of maize and lucerne.

The fact that so many instances of this sort can be given by veterinarians, whose work has been done in remote places, confirms the assumption that on the whole the main cause of these unusual occurrences is defective nutrition.

If proof of the influence of defective nutrition on disease is so clear in these extreme cases, it is reasonable to suppose that, *to a less obvious extent*, errors in nutrition play a most important part in most diseases, and that Dr. Orr is abundantly justified in drawing our attention to the matter.

In the course of inspecting over forty thousand cattle in a tropical country, with a view to picking out and destroying clinical cases of tuberculosis, it was found that the incidence of clinically obvious cases was far greater on plantations where the cattle were half-starved than where they were sufficiently fed.

The well-fed cattle may have included many *reactors*, but good nutrition kept the disease in check, and clinical symptoms were rare.

There is a tendency to forget that vaccines and the like are new and relatively trifling things, and that flocks and herds have been improved and increased throughout the ages without their aid, but not without the aid of good feeding. The natural power of resisting disease as a rule depends largely upon nutrition, and it is not wise to assail this great truth with instances of anthrax or typhoid, which are in their incidence nearly as artificial as chemical poisoning.

If the livestock of the British Isles and of New Zealand, for example, has exceptional vitality, and therefore exceptional power of resisting disease, then this vitality and this resistance are attributable chiefly to the exceptional conditions of nutrition that prevail in the British Isles and in New Zealand.

The English thoroughbred horse, the English Shorthorn ox, and the Dutch Friesland cow, have survived the microbial attacks of centuries, and have attained to their present excellence chiefly by reason of the careful feeding of careful men.

In comparison with nutrition, including both alimentation and oxygenation, which are inseparable, vaccines and the like are of small importance in their influence on the incidence or the course of disease.

In respect of typhoid it is not possible to determine the relative effects of vaccination and sanitation on the incidence of this disease, and consequently it is not logical to give most of the credit to vaccination which, of the two, is less likely to be effective.

With reference to the criticism that the influence of nutrition on disease is of no greater importance than cold or fatigue, it is of course true that the latter agencies, beyond a certain degree, will produce disease or death irrespective of nutrition. Within ordinary limits, however, cold and fatigue in their influence on disease are secondary to nutrition. They are merely two of the many katabolic weights in the metabolic balance of which nutrition is the main anabolic weight.

Nature clearly shows that she regards the influence of nutrition as primary to that of cold in providing the whale and the seal with their subcutaneous fat, and sending them forth into the Arctic regions. Similarly, man tries to maintain the metabolic balance of domesticated animals in winter by housing, rugging, and clipping, but he does these things to assist him in his business of nutrition in relation to the production of work, milk, and fat, and not because they are essential to health and life.

The shaggy colts, rising in the dawn of a bitter winter's morning from their self-warmed beds on the frozen ground, care nothing for cold so long as nutrition is adequate.

It is not too much to say that the health of all organic life is *primarily* dependent upon nutrition.

The drainage of lands is only the means whereby the farmer seeks to provide a properly-balanced ration for herbage, by eliminating the excess of water

from the soil, i.e., from plant food, so that wholesome sustenance for grasses and animals is created, where formerly were stagnation and death. The pathogenic organisms and the insect carriers of those organisms that lurk in swamps are local causes of death that bear a direct relation to the health of the mother earth, by which all life is maintained ; they can be eliminated or avoided. The influence of nutrition, whether of plant life or animal life, on diseases like influenza, swine-fever, foot-and-mouth disease, and other similar enzootic diseases, is obscure, but, other things being equal, it is a truism to observe that the best-nourished animal will offer the greatest resistance. By no means, however, let it be inferred that by the " best nourished " is meant the fattest animal. Diseases like anthrax, and South African horse-sickness, are baffling. They may be termed " zymotic thunderbolts," of which the impact is too great to be withstood by any natural powers of resistance. The most satisfactory feature about them, in the present state of our knowledge, is their limited distribution.

Suppression of Tuberculosis.

By Henry Gray, M.R.C.V.S., London.

Everybody, especially in the medical and veterinary professions, is urging the suppression of tuberculosis in cattle. In spite of this, very little, if anything, is done to prevent its increase. It might be said that some cattle owners are endeavouring to eliminate the disease from their herds by means of the tuberculin test. But how many of them are there who are not disseminating the scourge broadcast by disposing of the reactors to dealers or in the open market ? Probably the true reason of the increase of the malady is the sale of these reactors.

The sale of reactors, which is a widespread and very lucrative business, is a cruel procedure because it is one of the chief means of spreading the disease, besides, it frequently victimizes little farmers, who are the principal purchasers of such animals, which, not infrequently, succumb to the plague within a few weeks after coming into their new owner's possession.

If this is the method of getting rid of the scourge it does not show much perspicuity on the part of the veterinary profession, which is very silent on this mode of dissemination. Apparently, those who are engaged in eliminating it from herds are in reality aiding and abetting its spread, to the detriment of the community.

If surgical tuberculosis, that is, enlarged cervical and mesenteric glands, lupus, diseased joints, etc., in the human subject be due to tuberculous milk, and is on the increase because of its increase in dairy cattle, surely, then, the most humane mode of treating it in children is to get rid of it in the cow.

To eliminate it in the cow is the function of the veterinary profession, and not of the medical profession. To prevent it in the human subject is the concern of the medical profession, whose province is to take care that human beings do not consume diseased or dangerous food, which would not be given by sensible people to pigs.

Tuberculosis is a preventible contagious disease. Foot-and-mouth disease and other acute contagious diseases of animals are, compared with it, a fleabite as regards human health, happiness, and prosperity. It kills, maims, or reduces to chronic invalidism hundreds of thousands of people, and is always progressing in spite of the boast of the progress of medical science, veterinary practice and agriculture.

As this is a question that concerns the health, happiness and prosperity of a great number of people, greater than would form many army corps, it should be grappled with forcibly, firmly and without undue delay by the Government.

" Our Dumb Friends' League."

Lord Ullswater, formerly Speaker of the House of Commons, Sir Edward Marshall Hall, K.C., Lord Ernest Hamilton, and Judge Staveley Hill have consented to sit on a Court of inquiry which is to investigate the dispute between the members of the organisation known as " Our Dumb Friends' League." It will be remembered that a libel action was begun some time ago by Lord Lonsdale and others, who constituted a part of the Grand Council of the League, against certain other members of the Council and members of the League. The alleged libel arose out of allegations with reference to the management of the affairs of the League.

In the action pleas of justification were raised by some of the defendants, and, as a result of discussion between the parties concerned, the action was stayed by Master Daldy on terms that there should be reference to a Court of inquiry to decide whether the League is being conducted efficiently or not. The inquiry is to be a public one. Both sides have delivered their statements, setting out their contentions. Every effort is being made to bring the unfortunate dispute to a satisfactory ending. It is understood that Mr. Hunter Gray, K.C., and Mr. Alan Bell will appear for the complainants, who include Lady Lumb, Mrs. Beresford Haywood, and Mrs. Annie Bradshaw.—*The Times.*

Approaching Parliamentarians.

A correspondent informs us that he recently asked Mr. Foot Mitchell, Conservative member for the Saffron Walden Division of Essex, the following questions :—

(1) Are you in favour of the re-introduction of the Tuberculosis Order ?

(2) What are your views on the Milk, Dairies and Cowsheds Order ?

(3) What is your attitude towards the questions of the provision of public abattoirs for all towns and rural districts, and of the inspection of meat in respect to public health ?

Mr. Foot Mitchell's reply was as follows :—

" All of these shall receive my sympathetic attention, and when any or all of them come up for consideration in the House, I shall be pleased, as far as possible, to meet the views of the Veterinary Profession."

The Veterinary Record.

6th December, 1924.

THE EXTRAORDINARY GENERAL MEETING.

Next Monday, December the 8th, an Extraordinary General Meeting of this Association will be held for the purpose of passing the resolutions concerning the winding up of the present Association, and for setting up the machinery necessary for transferring all the interests and assets of this Association to the new Association, to be registered under the title of the "National Veterinary Medical Association of Great Britain and Ireland." The aim and object in view, is one only—namely, The elimination of the word "Limited" from our present title. Many formalities, however, are necessary under Board of Trade regulations; the first and the one which might possibly cause a little misunderstanding, is that the present Association must be wound up, that is, it must go into voluntary liquidation. Here, one would like to lay great emphasis on the word voluntary, since the word liquidation has come to have such a sinister meaning to some unfortunate individuals who have held shares in companies which ended in failure. Liquidation, in our case, does not in any sense imply failure, and this will be readily proved when our accounts are published. It is merely a process in the closing of one company's affairs, before the new company can take over. Members should realise that the new Association will be identical with the present Association in every detail, except for the word Limited in the title, and that the work of the Association will continue exactly as before, except that it will be capable of greater development. With the new Association will come new Articles of Association, which have been the subject of consideration of a committee for more than a year, and which not only incorporate the old Articles, but contain new ones which will allow of the expansion of the Association and provide for many activities which may be necessary in the future. These Articles will permit of the Association being carried on more on the lines of the British Medical Association. They have to receive the consent of the Board of Trade.

The meeting on Monday will be quite formal. It is necessary that these resolutions or similar ones shall be passed by a requisite majority of the members present and it will be necessary, if they are passed, to hold another meeting in a fortnight's time to confirm them. It is confidently expected that no hitch will occur, but that the Board of Trade will have completed its examination of our claim and granted its license to the new Association, so that this may come into being on January 1st, 1925.

REVIEW.

The Journal of Helminthology.*

The concluding part of the second volume of the *Journal of Helminthology* has just been published. This journal is edited by Professor R. T. Leiper, F.R.S., and there is much to interest veterinary surgeons in the second, as in the first volume.

Dr. T. W. M. Cameron, M.R.C.V.S., continues his series of descriptive articles on the "Hookworms of Domestic Animals." Mr. P. L. le Roux, M.R.C.V.S., describes the results of a survey of the worm parasites of horses in England and Scotland, and materially adds to our knowledge of this subject. Dr. Goodey gives detailed descriptions of the œsophagostomes of the farm animals with observations on the life cycle of the pig form. He has also written an article on the small stomach trichostrongyle of pigs. D. O. Morgan contributes an instructive article on a survey of the helminths of sheep, cattle and pigs in the Aberystwyth area of Wales. These papers represent but a few of the articles of more particular interest to the veterinary profession. There are many more of importance to the medical man and to the general zoologist.

Volume II. extends to some 260 pages, and is well and clearly printed. There are about 250 illustrations, the majority of which, being line drawings, are much more intelligible than the half-tone blocks too frequently used.

There is no doubt that this journal is filling a gap in the scientific literature of medical and veterinary zoology and parasitology. We hope that it will receive the continued support from our profession which such an enterprise deserves.

CLINICAL NOTES.

"A Cutaneous Query."

In your issue of 11th October, Mr. K. A. Miles, of Rugby, inserts a note entitled "A Cutaneous Query," and asks for enlightenment. The answer is furnished in the following extract from a review in the *British Medical Journal*, 15th November, 1924, p. 906, on a work entitled *Anaphylaxis and Sensitisation*, by Dr. R. Cranston Low:—

"One of the most interesting chapters is that on *hydroa aestivale*,† which is a discussion of the biochemistry of photo-dynamic sensitizers. It appears that the worst cases of buckwheat poisoning in cattle occur when white or spotted animals eat the plant when in bloom. One of the symptoms is an itching erythema. Black animals are not affected, nor even are white ones if kept indoors or under cloudy skies. White animals put out into the sunshine rapidly

* *Journal of Helminthology*, published at 23 Endsleigh Gardens, N.W. 1. 25/- net per vol.

† *Hydroa aestivale* is a disease of children marked by the development of vesicles upon patches of erythema. The disease recurs every summer. (Dorland's *Medical Dictionary*).

develop the dermatitis. Ultra-violet light is therefore one of the causal agents. But buckwheat contains phytoporphyrin, an ally of chlorophyll and of hæmatoporphyrin. The inference is that the pigment is a photic sensitizer. Now in *hydroa aestivale* hæmatoporphyrin is very often found in the urine, and is presumably in the blood. The inference here is that that pigment is the photic sensitizer of the skin in which there is induced a destructive process. Chlorophyll or hæmatoporphyrin added to a suspension of red blood cells in a strong light causes them to be hæmolysed, while in a control tube in the dark no hæmolysis occurs."

It would be a distinct addition to our knowledge if an expert would repeat this test with the blood of the herbivora. If chlorophyll is capable of breaking down the red blood cells of the horse, we may be on the road to learning something of the nature of purpura hæmorrhagica. I have shown that chlorophyll exists in the dandruff of the horse and to get there it had to pass through the blood. With the exception of the horse there is no known vertibrate which excretes chlorophyll, nor, so far as I know, absorbs chlorophyll from the digestive tract. It ought, however, to be definitely ascertained whether the blood of ruminants is chlorophyll-free ; reasoning from analogy I can hardly suppose it to be.

The disease referred to by Mr. Lewis was described in 1841 as affecting cattle in Germany, and was attributed to ergot. The white portions of skin became gangrenous, the black areas remained unaffected. The disease was also stated by Varnell and others to occur in this country.—F. Smith.

Caesarian Operation in a Cow.

By H. W. Carbury, M.R.C.V.S.,
New Zealand.

Subject.—Cross-bred cow on third calf.

Examination.—This showed a large mass of fœtal bowel, etc., hanging from the vulva, and evidence of incomplete obturator paralysis in both legs. Vaginal examination showed the calf to be malformed, being doubled backwards on itself from the mid-dorsal region, so that the back of the head and the root of the tail were in apposition, and accompanied by all four legs, these all pointing anteriorly. Posteriorly, the hand entered freely into what should have been the abdominal and thoracic cavities. As a normal delivery was impossible owing to the shape and rigidity of the calf, a Cæsarian operation was decided upon. One ounce of chloral hydrate was administered, and thirty minutes later the dose was repeated. The cow was then easily cast and secured. An incision as for rumenotomy, only considerably larger, was made in the right flank. Sterilised towels were placed inside the wound to keep the intestines back, and expose the uterus. An incision corresponding in size to that in the flank was made along the upper aspect of the pregnant horn and body of the uterus, and the

(Continued at foot of next column.)

Central Veterinary Society.

Fifty-First Annual Dinner.

(*continued*).

Mr. J. W. McIntosh, having accepted the medal from the hands of the President amid enthusiastic applause, said, It is very difficult at a moment such as this to express in anything like suitable terms one's thoughts and feelings, and that difficulty is to-night intensified because of the very gracious and all-too-flattering words in which the President has been pleased to make the presentation. I hope I am not so vain as to believe that I deserve all the nice things he has been good enough to say regarding me, but what I do believe and accept is the sincerity of his remarks and the sincerity of your welcome. To say that I am proud of the honour you have done me, and very grateful for the kind thoughts which have prompted the giving to me of this mark of distinction, is a very feeble attempt at conveying to you how I really feel, but I am sure you will accept it as the best effort I can put forward at this moment.

It is now close on twenty years since I crossed the border to pursue my calling in this great city, a stranger to all of you, and you took me in—or perhaps

(*Continued from previous column.*)

calf removed. The cow was placed on her back before opening into the uterus to eliminate as far as possible the escape of uterine fluids into the abdominal cavity.

The interior of the uterus was cleaned and it was then taken through the abdominal incision, placed on, and covered with,warm sterilised towels, and the edges of the incision brought together with silk (Lembert) sutures. The uterus was then replaced, and one gallon of acriflavine in normal saline (1-1,000) was poured into the abdominal cavity ; the muscles and skin were brought together by tape sutures, and the wound was covered with a towel damped with antiseptic, and renewed daily. Four 1-dr. iodoform pessaries were placed inside the womb. The cow made an uninterrupted recovery, and rejoined the herd in a week's time.

Cancer of the Rumen.

By W. Shannon, M.R.C.V.S., Cookstown.

Recently, when making a *post-mortem* examination on a cow, I found a diseased condition of the walls of the rumen which were thickened and hardened at different places by an infiltrating growth.

I sent the specimen to the Imperial Secretary's Veterinary Laboratory at Queen's University, Belfast, and received a report that the new growth was a squamous-celled carcinoma.

I think this is a rare situation for the occurrence of cancer ; indeed, I imagine that any organic disease of the rumen must be rare, this being the only occasion upon which I have seen anything abnormal in the structure of this viscus.

I should say you admitted me to the Fellowship of this Association. A few years later you did me the honour of putting me in the Presidential chair—an honour of which I need hardly say I was very proud. To-night you have added further to that honour by awarding me this beautiful medal. It is to me a very real pleasure to think that, after all these years, my fellow members still think sufficient of my efforts to award to me this Victory Medal. I think there is nothing finer in life than to feel that you have the respect, the confidence and the goodwill of those who have been so closely associated with one in their life's work. I shall always look back upon my association with the Central with the warmest affection, and the medal you have given me to-night will be cherished by myself, by my wife, and by my daughter throughout the years that are given to us; and in the quiet hours of home life, when professional and other activities must perforce cease, it will remind me, if reminder is needed, of the many happy hours spent in the work of the Central and, particularly, in the companionship and the good fellowship of its members. I heartily thank you for the honour you have done me to-night. (Cheers.)

The Tuberculosis Problem.

The toast of "The Visitors" was submitted by Lieut.-Colonel T. Dunlop Young, who said that, while it was a pleasure to them to have one another's company on such an occasion, it was a double delight to have with them those who did not meet with them throughout the year. They had with them Sir D'Arcy Power, an honoured member of the medical profession and always a valued friend of their own profession. Colonel Nathan Raw was another medical visitor whom they were delighted to welcome. He was a well-known authority on tuberculosis, and he (Col. Young) had personally witnessed some of the benefits of his treatment of that disease. Dr. Rowlands, too, was ready at any time to assist the veterinary profession in every possible way. He was a good man to be associated with them because he was not only a pathologist, but he was also a noted scientific breeder and feeder of pigs and placed his whole farm, stock, and methods at the disposal of everyone in the profession who cared to go and see what he was doing. That was an education to them all. Amongst the members of their own profession they had with them, he was proud to say, Captain Adrian Jones (cheers), a member of the Victorian Order—the famous sculptor, whose works must have been seen by many of them. He might mention his latest well-known work, the Cavalry Memorial, as well as the statue of General Redvers Buller at Exeter, and the great Quadriga. They had also with them their very esteemed friend Professor Woodruff, from the Melbourne University. (Cheers.) There was, perhaps, no man in the profession who was more beloved during the time that he was with them. He was a great loss to the profession in this country, but he must have been a great gain to their brethren in Australia. They were very pleased to have with them Captain Ross Grant, representing the Australian Government, and Dr. Tuck, representing the U.S.A.—they were an honour to their professional brethren across the seas. (Hear, hear.)

He now came to one whom they all knew and whom they all loved—their esteemed and honoured President, Mr. Slocock, the President of the R.C.V.S., and last, though certainly not least, Mr. A. J. Scott, the well-known Editor of the *Meat Trades Journal*. As one who knew Mr. Scott personally, he could say that there was no man who was a greater friend to their profession. He represented the meat traders who, as they knew, were a very important body.

It really was their duty, as veterinary surgeons, to assist in the work of ensuring that no human beings should consume meat from diseased cattle, sheep and pigs. Mr. Scott had advocated for a long time three very important points which affected their profession. The first was that only veterinary surgeons who have had a special training should be placed in charge of meat inspection. He was proud to say that the recommendations had had effect, if not in this country, at least in Scotland, where in future only fully qualified veterinary surgeons would be in charge of meat inspection. He would like to pay a tribute to the medical profession, as represented by Dr. Gerald Leighton, who had taken a broad-minded view of public health work and so assisted to establish the position as it exists in Scotland. The second item advocated by Mr. Scott was the re-introduction of the Tuberculosis Order. If ever there was an Order which required re-introducing it was that Order. (Hear, hear.) It should be re-introduced in order that any animal which showed clinical symptoms of tuberculosis should be eradicated from the herds. It was their duty to see that they were given the power to eradicate from the cowshed every cow that showed the slightest symptom of tuberculosis. Another point recommended by Mr. Scott was that there should be a thorough veterinary inspection of every animal submitted for sale in a public market. Diseased animals could now be taken away to a place where there was no proper meat inspection and where the diseased parts were cut out. If there were proper meat inspection those animals would be condemned. Such a step would have a further effect—if a systematic veterinary inspection of public markets took place, the disease of foot-and-mouth might be detected and stopped before it had gone further and spread throughout the country. He asked them, therefore, to drink to the health of the visitors, coupled with the name of Mr. Scott.

Mr. A. J. Scott, Editor of the *Meat Trades Journal*, who was the first of the visitors to reply, said: I really hardly know why upon the first occasion of my visiting the Central Veterinary Society, I should be invited to respond to this toast, especially, as my friend Colonel Young has pointed out to you, there are many eminent visitors here. Let me, on behalf of the visitors and myself, thank you very much for the kind invitation you have extended to us to join your festive board, also for your generous

hospitality and for the kindly way in which you have received the toast.

Colonel Young has been good enough to refer to one or two items in which we in the meat trade are very particularly interested, and which we strongly advocate because, in any branch of life in this age of progressive science, it is necessary for a man to have a special training to carry out the duties entrusted to him. We in the meat trade, therefore, feel it to be logical that only a man who has had a thorough training in the physiology and anatomy, in the pathology and bacteriology, of the food animals, is sufficiently qualified to recognise and appreciate the significance of the disease found in the carcase and the organs of these animals.

With regard to the Tuberculosis Order, as a representative of the meat trade, I can tell you that it is very necessary indeed to the meat trader that this Order should be re-introduced. Up to 50 per cent. of the cows of this country are more or less affected with tuberculosis and we do hold—and not only in our own interests, but in your interest and in that of the public—that there ought to be a thorough examination of these animals by trained officers. In the U.S.A. they do things rather better than we do. I believe I am right in saying that—(I quote from the Bureau of Animal Industry of July)—something like half a million cattle were tested with tuberculin, of which about 15 per cent. reacted. Something like five million cattle have been tested once and found free from the disease and about one million cattle have been put on the accredited list of animals absolutely free from tubercle. The farmers themselves, in the U.S.A., have sent in applications that the test should be applied to two and a half million cattle. This surely shows that not only are the officials in America anxious to eradicate this disease, but that the farmers are themselves as anxious that their herds should be clean.

Contrast this with what is happening in our own country. Ask yourselves what we are doing to clean our herds, and the answer must be nothing, absolutely nothing. In this country, apparently, we do not believe that prevention is better than cure, because we do find money for sanatoriums instead of finding money to attack the disease at its source. It must be patent that it is a better thing to have sufficient veterinary inspectors in cattle markets. Contagious disease would thus be discovered and prevented from going outside. I think, as Colonel Young has said, that something might have been done to prevent the spreading of foot-and-mouth disease which has disorganised our trade for fifteen months if we had the inspection for which we ask.

I feel that in your profession we have many good friends and, if we go forward unitedly, we shall carry these reforms which we have at heart. (Cheers.)

Colonel NATHAN RAW, who also replied, said that it was not the first time he had had the pleasure and privilege of accepting the hospitality of the Central Veterinary Society, and each time he had done so he had thoroughly enjoyed himself. There was no doubt that the interests of the veterinary and the medical professions were so closely interwoven that the result of fusion must be to the advantage of the general public and of the professions themselves. He felt sure that the institution of the Comparative Section of the Royal Society of Medicine was one of the greatest strides that the veterinary profession had made in the scientific world.

The remarks which had been made by Mr. Scott with regard to tuberculosis were of immense importance to the veterinary profession, and he could assure them that he took the opportunity in the House of Commons on many occasions of trying to induce them to restore the Tuberculosis Order. (Hear, hear.) There was no doubt that one of the reasons why that Order was not restored was on account of the colossal expenditure involved—it was estimated that to restore the Order in full would cost thirty-five or thirty-six millions a year if compensation was given for the innumerable cattle which were suffering at the present time. What they must aim at was the prevention of the infection of cattle. Of course that was the ideal to be aimed at, but he felt sure that, when they were dealing with cattle, which were so difficult to house and control, prevention was certainly better than cure, though he was certainly a strong advocate of the restoration of the Tuberculosis Order at an early date. He sincerely hoped that the relations between the veterinary and the medical sides of the profession would be closer in the future than they were now, great as had been the advance made in the direction of co-operation. (Cheers.)

Professor H. A. WOODRUFF, who was called upon by the President for a response, said: It is to me a very great pleasure to find myself once again at the Annual Dinner of the Central Veterinary Society. I look back on the past, when this Annual Dinner was looked forward to as one of the pleasantest evenings of the year, and it is an added pleasure to come back, after ten or eleven years in Australia and to see so many old faces of members of this Society and so many faces of old students of Camden Town, who were not then members of this Society but who have since joined.

I find myself to-night under the Presidency of a man who joined the College at Camden Town on the same day as I myself joined. Our friendship has remained all that time and I am delighted to see your President in the Chair. (Cheers.) There are some gaps and, looking round, I miss such figures as William Hunting and Hughie McCormack—so long your secretary, and the last veterinary surgeon who said good-bye to me on my departure, and a characteristically affectionate good-bye it was.

It is a great joy to come back to find this Society thriving, to find it strong and vigorous as a part of the N.V.M.A., and to find the profession banded together. (Cheers.)

The subject of tuberculosis has been raised and I only want to say just one word or two about it. It has been my privilege recently to pay a visit to

Professor Bang, of Copenhagen, and Bang has come to the conclusion that some of the policy which he advocated many years ago, and made his own particularly, might be amended, but he is quite certain that prevention of infection in new-born animals, which need not necessarily be at all a costly business, is the thing to be aimed at, and that the animals which are now subject to the disease might be allowed to run their course without interference, so long as you eliminate those clinically affected. I believe it would be a great step forward if everybody accepted that policy. There is one part of their policy in Denmark that I have never understood the reason for omitting in this country, and that is the matter to which Colonel Young referred, namely, the infection of pigs. In Denmark, by law, all products from the creameries have to be sterilised before they leave the factory. I believe that if that were done in this country it would eliminate a large amount of tuberculosis infection in the pig. We have in Victoria an Act of Parliament which only covers about one-third of the State and it is known as the Dairy Supervision Act. It provides that all the cows of all the dairies in the large cities shall be subjected to veterinary inspection by Government officers. The effect of that can be gauged by taking the pig as an index and in the bacon factories in that one-third of the State to which the Act applies the number of pigs infected is found to be 3 to 4 per cent., but in the other two-thirds of the State, not under the Dairy Supervision Act, the percentage of pigs infected is from 15 to 16 per cent. That is a tribute to what the veterinary inspection of cows and cowsheds can do. You must remember that children are infected in the same way, and there is an important lesson to be learned from that. I only wish, further, to say what a pleasure it has been to me to be here and to join with all my old friends, such as the President, in this very happy evening. (Cheers.)

Captain ADRIAN JONES also replied, in brief but felicitous terms. He also had experienced great pleasure in the meeting of old friends, and he wished to say that he was honoured and touched by the way in which the members of his old profession, in which he started life, had followed his career in his later sphere of work.

THE WORK OF THE PAST-PRESIDENT.

The toast of the "Ladies" having been proposed by Major G. W. DUNKIN, and responded to by Captain S. L. SLOCOCK.

The PRESIDENT said that he had fully meant to refer, earlier in the evening, to the excellent work performed by the Past-President, Major Rees-Mogg. (Cheers.) He must apologise for that very serious omission, for which he hastened to make amends. They, as a Society, owed a very great deal to their Past-President for the great energy which he had put into his work on their behalf during the past year. It had been voted on all sides a very successful session and he was very nervous of having to follow such an excellent holder of the office of President. His one consolation was that he had beaten him on the Annual Dinner. (Laughter and Cheers.) They did thank Major Rees-Mogg very much indeed for his services during the past session.

It was also incumbent upon them to think of all those who, through ill-health or advancing years were unable to enjoy themselves as they had done. The President concluded by inviting all present to contribute to his collecting box in aid of the Victoria Veterinary Benevolent Fund—an appeal which produced a very substantial response.

Major REES-MOGG expressed his gratitude to the President for his kind words. Major Simpson had talked about his work during the past year, but they would remember that last year at that corresponding time he asked them to help him make the session a successful one, and it was due to the splendid response which they had made that that result had been achieved. They had had an average attendance of 36, including visitors, and he hoped that the present session would show an average attendance of 46. (Cheers.)

THE LATE MR. R. J. VERNEY.

In recording the death of Mr. Richard John Verney, of Oxford, to which reference was made in the *Record* of last week, the *Oxford Times* of November 21st, says: Mr. Verney came to Oxford about forty-five years ago from Stow-on-the-Wold, where he was born, and built up an extensive practice as a veterinary surgeon. He was a keen hunting man, associated with Lord Coventry's hounds and the Cotswold packs, and was an intimate friend of the racing men and trainers in the neighbourhood of Stow-on-the-Wold. Later he hunted with the South Oxon Hunt. Mr. Verney was also a keen fancier, and for several years zealously worked as the hon. secretary of the Old English Game Fowl Show. For nearly half a century he was connected with the City Council in the capacity of inspector, and for many years similarly served the County Council. He was a member of the Bertie Lodge of Freemasons, being initiated in 1889, and was Worshipful Master in 1896. Mr. Verney also held several appointments in Provincial Grand Lodge, the last being that of Provincial Grand Junior Warden, the highest office but two. He leaves a widow, a daughter, and a son, who is a senior officer in the Indian Veterinary Service.

The funeral took place, amid manifestations of deep regret, at Wolvercote on Thursday.

FUNERAL OF MR. W. P. STABLEFORTH.

The funeral of Mr. W. P. Stableforth, veterinary surgeon, of Stanhope, Honiton, and formerly of Colyton, took place last week, in St. Michael's Churchyard, Honiton. The Rector (the Rev. the Hon. F. L. Courtenay) officiated, and the service was of a simple character. The principal mourners were: Messrs. W. Stableforth (son), A. Stableforth, of Newcastle (brother), J. Hetherington (uncle), W. H. Burroughs, F. J. Burroughs and J. G. Burroughs (brothers-in-law), and C. Harding, Beer. Many prominent Freemasons were present, deceased having been a member of the "De la Pole" Lodge (1181) Seaton, and the "Fortescue" Lodge (847) Honiton. Others present included: Mr. and Mrs. E. W. Matthews, Mr. and Mrs. C. H. Glanville (Whimple), Messrs. G. D. Lansley (Axminster), W. B. Nelder and V. R. B. Nelder (Exeter, representing the Western Counties' Veterinary Association, of which deceased was Secretary), the Misses G. Harris and Thomas and Mr. Sam Evans (representing the Honiton Choral Society), Messrs. N. Braddell (Superintendent of Police). Mr. W. Roach, veterinary surgeon, of Exeter, was among those unable to be present.

DIVISIONAL REPORT.

Midland Counties Division.*

MEETING AT WEYBRIDGE.

On the invitation of Sir Stewart Stockman, the autumn meeting of the members of this division took place at Weybridge, on Thursday, October 16th, and the unusually large attendance was some evidence of the great interest taken by the profession in the activities of the veterinary department of the Ministry of Agriculture. The weather was fine and an inspection of the various outbuildings at the laboratory was made in comfort. The Hon. Secretary (Mr. H. J. Dawes of West Bromwich), had made excellent arrangements for the party, obtaining cheap railway tickets from Birmingham to London, and also from Waterloo to Weybridge, where motor vehicles were in readiness to convey visitors to and from the institution. The President (Mr. L. W. Heelis of Solihull) was met at the door by Sir Stewart Stockman and members of his staff, who cordially welcomed all their guests, afterwards conducting them to the library, where the first portion of the proceedings was carried out.

The programme was prefaced by the routine business of the division, which was disposed of as quickly as possible, and then, aided by lantern slides, SIR STEWART STOCKMAN and Captain DAUBNEY outlined and demonstrated some features of the general work which was being undertaken and which was of special interest to the general practitioner. Then followed a tour of the premises in small parties, each accompanied by a member of the staff, who explained things as he went along. Tea was then served and the short time remaining was devoted to a cinematograph display, by Sir Stewart Stockman, of those two curious diseases in sheep known as scrapie and swing-back. The one regret was that the time was so short. There is enough at Weybridge to keep the veterinarian interested for a whole month, and it is not too much to say the occasion will rank as one of the most memorable in the long history of the division.

Invitations were not restricted to members of the Association, and those who accepted were L. W. Heelis (President, Solihull), Sir Stewart Stockman, S. H. Slocock (President of the Royal College of Veterinary Surgeons), A. Gofton (President of the National Veterinary Association), F. Bullock (Secretary of the Royal College of Veterinary Surgeons), G. H. Livesey (General Secretary of the National Veterinary Association), Major F. Hobday (London), J. W. Conchie (Kidderminster), F. L. Gooch (Stamford), W. Stevens (Wincanton), W. H. Brooke (Handsworth), Brennan DeVine (Birmingham), A. J. Anthony (Brierley Hill), T. Slipper (Tamworth), H. W. Dawes (West Bromwich), T. N. Gold (Redditch), J. C. Deville (Uttoxeter), H. E. Powell (Coalville), T. H. Dobson (Leicester), W. W. Grasby (Daventry), T. Wilson (Nantwich), R. Phillips (Loughborough), G. H. Locke (Manchester), W. Caudwell (Bournemouth), J. W. Wynne (Denbigh), H. T. Hughes (Oswestry), J. Robertson (Stourbridge), F. B. O. Taylor (London), Gooch, junr. (London), T. H. Michie (Worcester), A Renfrew, senr., A. Renfrew, senr. (Broadway), H. B. Hiles (Worcester), A. B. Forsyth (Cannock), W. D. Aston (Derby), J. O. Powley (Harrogate), F. V. Steward (Hereford), W. Woods (Wigan), R. Watts (Nuneaton), W. Little (Reading), J. McIntosh (London), J. H.Mason(Beckenham), T. Dalling (Beckenham), W. G. Evans (Rayleigh), E. W. Parkes (Wellingborough), J. Martin, T. D. M. Martin (Wellington), J. R. Barker (Hereford) W. F. Widden (London), G. A. Banham (Stratford-upon-Avon), H. Steele Bodger (Tamworth), J. H. Carter (Henley-on-Thames), J. Scott (Leamington), W. E. Ison (Atherstone), P. Gregory (Tonbridge), A. A. Forsyth (Cannock), H. Hogben (Folkestone), A. J. Moffat (Isle-of-Wight), J. G. Parr (Leicester), R. R. Over (Rugby), J. R. A. Jones (Gloucester), S. M. Woodward (Birmingham), T. Ware (London), P. M. Evershed (Nottingham), J. W. Armfield (London), H. Sparrow (Rochford), A. C. Urquhart (Ministry of Agriculture), S. Smith (Horsham), J. W. Pritchard (Brighton), R. F. Montgomerie (Bangor), T. A. Dobie (Birkenhead), T. Spencer (Kettering), F. Lindsay (Crosigar Co. Down), E. E. Jelbart (Chipping Norton), J. Facer (Southampton), H. C. Gregory (Oswestry), Coulthard (London), W. Auld (Staines), F. W. Willett (Staines), F. J. Taylor (London), S. L. Slocock (Camberley), Dr. Herrington (Twickenham), T. Bagshaw (Uttoxeter), H. King (Kennington), A. B. Over (London), J. Munroe (Ministry of Agriculture) H. P. King (Kennington), N. S. King (Leatherhead), W. Perryman (London), and H. J. Dawes, Hon. Secretary. There were also present the following members of the laboratory staff: Captain W. G. Wragg, H. Gooch, Captain Daubney, Captain T. M. Doyle, Captain F. C. Minett, Captain Atkinson, J. M. Penhale, Captain MacPherson, E. W. Goodhall and I. A. Galloway.

Apologies for unavoidable absence were received from Professor MacQueen, Messrs. W. Dale, J. Lake, L. C. Maguire, T. Ludlow, F. O'Neill, W. Dale, junr., H. S. Cockburn, James Martin, T. J. Brain, E. Ringer, A. W. Findlay, W. Tart, James Whyte, T. Thompson, J. J. Burchnall, R. L. Green, H. L. Pemberton, Roberts, C. Haywood, H. Turner, L. C. Tipper, A. W. Trigger, J. F. Hutchinson, E. V. Tyerman, D. Forwell, F. F. Somer, R. Hughes, W. White, J. Cormack, M. Sadler, C. F. Parson, P. Simpson, L. W. Dunkin, F. G. Heatley and others.

New Members and Nominations.—The following veterinary surgeons, duly nominated at the previous meeting, were now unanimously elected members of the division: Mr. T. N. Gold, Redditch; Mr. G. Boulton Sandbach; Mr. D. J. Anthony, Brierley Hill; and Mr. H. W. Griffiths, Balsall Heath, Birmingham.

The HON. SECRETARY nominated for membership, Mr. Lindsay Auchterlonie, of Nottingham, and Mr. Scott, of Leamington.

Mr. HILES nominated for membership Mr. Mickie, of Worcester.

* Received on November 13th, 1924.

A New Honorary Associate.—The HON. SECRETARY in accordance with the notice previously given, moved that Mr. E. Brayley Reynolds, O.B.E., of Newmarket, be elected an honorary associate of the division. He said it was an honour that was long overdue. Mr. Reynolds had done an immense amount of work for the division, reading papers, performing operations and giving demonstrations and in other ways furthering its objects. He was one of the best known men in the profession, and he was sure the members would like to see him permanently identified with the division.

The motion was seconded by Mr. GOOCH, and carried unanimously.

COUNCIL'S RECOMMENDATIONS.

The HON. SECRETARY said that, to save time, the meeting of the Council took place in the train on the way down. It was resolved to recommend that the subject for discussion at the next quarterly meeting of the division, be the payment of veterinary inspectors, referred to in the recent circular from the N.V.M.A. It was further recommended that Mr. Livesey be asked to introduce the subject, and that invitations to be present be sent to all veterinary inspectors within the area of the division, whether members of the division or not.

Mr. DEVINE moved that the Council's recommendations be accepted.

Mr. ASTON, in seconding, said he thought it would be a great help if a scale of fees could be sent to members in advance. Let it be an ideal scale, and let them be informed, if possible, what fees were paid in various districts. He believed wide differences existed, but it was difficult to bear them all in mind. To issue such information beforehand would be of great assistance to them.

The motion was agreed to.

The Aberdeen Congress.—The HON. SECRETARY said he desired to offer his sincere thanks to those members of the division who accompanied him to Aberdeen on the occasion of the recent annual conference of the National Veterinary Medical Association. He knew that in some cases it had been done at no small personal inconvenience, and he regarded it as a special honour to himself that they should have attended.

DEMONSTRATION BY SIR STEWART STOCKMAN.

SIR STEWART STOCKMAN, to meet a request previously submitted by the division, showed on the screen a number of slides, illustrating important points in diagnosis.

Swine Fever and Swine Erysipelas.—Slides were shown illustrating the *post-mortem* lesions and differential diagnosis in connection with these two diseases, and the description was greatly facilitated by the fact that the slides had all been taken from natural specimens by colour photography. The various kinds of swine fever ulcers in different stages of degeneration and healing were demonstrated. The absence of such ulcers in swine erysipelas, and the presence of an exudate somewhat characteristic of the disease were brought out.

Rabies.—A slide of a rabid dog with a paralysed jaw and saliva dripping from the mouth was next shown. Slides showing the various dissections necessary to get at the hippocampus and cerebellum for the purpose of examining for Negri bodies were also shown. The dissection of the neck necessary to expose for excision the cervical and lenticular ganglia, and slides from photo-micrographs in colour, showing Negri bodies inside the nerve cells of the cerebellum and hippocampus, and stained in various ways, were also shown.

Likewise photo-micrographs of the nerve ganglia, done in colour, were shown on the screen. The latter gave a very clear illustration of the cellular infiltration which takes place in the ganglia of rabid animals, and also the process whereby the damaged nerve cells become removed by phagocytes.

Sheep Scab.—The parasite of sheep scab in its various forms, from the egg to the ovigerous female were shown. It was also intended to show a cinematograph film of the collecting, driving and dipping of sheep in a hill district in Wales, under an order of the Ministry. On account of the small amount of time available, however, this film was reserved provisionally until after tea.

Foot-and-Mouth Disease.—A map of England was shown on the screen, illustrating the more or less definite areas on the South-east, East, North-west and South-west coasts where initial outbreaks during the last thirty years have almost exclusively occurred.

Slides photographed directly from interesting specimens showing various lesions of the tongue, mouth, and of the feet, were also shown, and the demonstrator drew attention to the important points in connection with the lesions.

In response to a generally expressed desire, Sir Stewart Stockman gave an outline of the recently published work of Frosch and Dahmen, in connection with what they believed to be identification and artificial cultivation of the virus of foot-and-mouth disease. He explained that with the time at his disposal he could do no more than give the briefest sketch of this important work, remarking that whether the findings were right or wrong, the work was certainly of a remarkable character.

Frosch, making use of a more or less new method of photography, conceived the idea, as applied to the virus of foot-and-mouth disease, that possibly light of the shorter wave lengths might reveal something that examination by ordinary light did not show. He (Frosch) explained that one of the great difficulties in revealing these very small bodies was the fact that the best lenses, ordinarily at our disposal, were insufficient to show such bodies with anything approaching definition. He drew attention to the distinction between magnification and definition, pointing out that the definition of a lens depended largely on what is usually spoken of as its angle of aperture. He pointed out that the angle of aperture might be increased enormously by using lenses and condensers constructed of diamonds—something beyond our reach. He also pointed out, however, that a similar

effect could be obtained with the best lenses at our disposal by illuminating with light of short wave lengths, particularly the ultra-violet rays. He explained that such rays fluoresced the human eye, and could not be made use of in this way, but that by interposing a photographic plate an impression might be obtained of the objects which were being looked for. By this method he had obtained photographs of objects in what were thought to be artificial cultures of the virus of foot-and-mouth disease, and these he had transferred to print. (Prints were shown on the screen).

Dahmen on his side had made use of the discovery that foot-and-mouth disease in a certain form could, by inoculating the virus in a special way, be conveyed to guinea pigs, which proved a ready method of obtaining virus at various stages for its cultivation.

Dahmen and Frosch, from their various attempts in the past to cultivate the virus, had come to the conclusion that their past failures had been due to some anti-agent in the lymph, which destroyed the virus and prevented a culture being obtained. They sought to free the virus of their agent, after being purified by filtration, by centrifuging and washing it.

These ideas, the lecturer explained, were purely conjectural, and he only mentioned them to show what was in the minds of these two distinguished scientists, when carrying out this research.

Using a special culture medium which was sown with centrifuged and washed virus, Dahmen, with the concurrence of Frosch, believed that he obtained cultures. This conclusion was largely based on the fact that with the 5th, 13th, and 23rd sub-cultures he had obtained what he believed to be infection of guinea pigs.

Sir Stewart Stockman explained that this work was being repeated at the Ministry's laboratory and at others, but so far undoubted confirmation of the findings of Frosch and Dahmen had not been obtained. He explained that having regard to the length of time which it was now known the virus of foot-and-mouth disease would remain viable outside the bodies of animals under certain conditions, it was quite possible that another explanation might be found for the results obtained by Frosch and Dahmen, namely,, that the original virus had survived. On the other hand, he desired to impress that the information at present available was not sufficient to permit of anybody pronouncing a definite yea or nay. Assuming, he said, that the findings of Dahmen and Frosch are correct, they opened up tremendous possibilities of dealing with foot-and-mouth disease in other ways than those which are at present available; but he also pointed out that, even assuming the findings to be correct, nobody could say with anything approaching certainty that such desirable results would be attained.

Mr. Daubney on Parasites.

Mr. Daubney spoke shortly on the subject of the commoner parasites encountered by practitioners in everyday practice. Extensive losses had already occurred during the present season amongst lambs as a result of heavy infestation with a species of *Ostertagia* (*O. circumcincta*); another species of the same genus, *O. ostertagi*, was responsible for similar losses in cattle. The bronchial or husk worms also appeared to cause fairly extensive damage to heavily infected calves or lambs. The life histories of all of these parasites, and also of the strongyle parasites of the horse, were essentially similar. The egg hatched (in the case of the lung worms in the lung, and in the case of the parasites of the alimentary canal in the fæces), liberating a larva which underwent two moults outside the host. The second moult was usually not completed, inasmuch as the old cuticle was retained after moulting and acted as a protective sheath, enabling the larva, which now was ready to infect another host, to resist variations in moisture and in certain cases actual desiccation. It might be remarked that the larva of the lung-worm left the host in the fæces in the same manner as did the eggs of those forms living in the alimentary tract.

It was pointed out that the size of *Ostertagia circumcincta* and *Ostertagia Ostertagi* was such that these parasites might readily escape a cursory examination. Various methods were employed to establish a diagnosis. Repeated sedimentation of the stomach contents in water, was perhaps that most commonly employed. An alternative was to transfer the stomach contents, gathered in the point of a dissecting needle, to petri dishes containing water, and to examine these under a low power. Examination of fæces to detect eggs was of value when a definite technique is always followed, and the worker had experience of the quantity of eggs passed out by heavily parasitised animals, and of the method of examination employed. Samples of fæces might be sent to the Ministry's laboratory whenever it was not possible for the practitioner to make a diagnosis.

With reference to anthelmintic treatment, copper sulphate was universally used for the removal of the stomach worm of sheep, i.e. *Haemonchus contortus*, 50 c.c. of a 1 per cent. solution being given to lambs under one year old and 100 c.c. to lambs over this age. This treatment gave excellent results. So far as the removal of the smaller round worms of the genus of *Ostertagia* was concerned, up to the present no entirely satisfactory treatment has been found. Among those drugs tried by Mr. Daubney, carbon tetrachloride had given the most successful results. The dose given varied from 8 to 14 c.c., and the drug was given undiluted by means of a tube passed some distance down the œsophagus.

The life history of *Ascaris lumbricoides* of the domesticated pig was next discussed. It was pointed out that prior to the investigations of Stewart (1915), it had been assumed that the life history of this parasite was simple and direct. The work of Stewart, Ransom, Yoshida and others had now established that the life history was as follows.

The egg is passed out with the fæces and in the course of about a month develops a larva. The egg does not hatch unless ingested by a pig or other animal

host. When ingested by a pig, the egg hatches in the stomach or pylorus, and the larva penetrates the wall of the intestine, reaching first the liver and then the lungs. The larva may be recovered in the lungs four to six days after infection. In the lungs the larvæ work their way into the air sacs and progress up the finer bronchioles and the main bronchi to the pharynx, when they are swallowed and again reach the intestine. On this occasion numbers of the larvæ remain in the small intestine and reach maturity. When numbers of larvæ are migrating in very young animals, pneumonic changes are induced. If infection is taking place repeatedly, chronic pneumonia, which may last several months, supervenes. The infested animals are undersized and in poor condition. Occasional animals in an infested litter are considerably smaller than the remainder; they are often referred to as wrecklings. The losses due to *Ascaris lumbricoides* are almost entirely confined to those pigs that acquire infection at an extremely early age. This infection is conveyed by the swallowing of eggs while the young pigs are in the farrowing pen, and even when they are sucking the mother. An adequate system of prevention is that known in the United States as the McLean County System. Farrowing pens are provided which are capable of being throughly flushed out with boiling water. Before the sow is removed to the farrowing pen her flanks, udder, etc., are washed thoroughly with soap and water to remove any eggs which may be adherent. The farrowing pen having been similarly cleansed, the sow is placed in the pen one week before farrowing. Since one month is required for eggs to reach the infective stage, even if the sow is harbouring adult worms, the young pigs are safe from infection for a period of three weeks after birth. Before that period is expired they and their mother are removed to clean pasture and given shelter in a wheeled house. It is possible in this fashion to raise large numbers of pigs without the incidence of losses from *Ascaris* infection. Oil of chenopodium appeared the most successful anthelmintic for treatment of the older pigs.

The coming winter appeared likely to witness an outbreak of fluke among sheep, possibly on a similar scale to that of 1920-21. Reports of heavy infection of flocks were reaching the Ministry daily. The life history of the parasite was briefly summarised, and it was pointed out that the young fluke enters the liver by penetration of the capsule and remains in the parenchyma of the liver for some little time before proceeding to the bile ducts. It was important that any deaths which took place during this earlier stage of the disease should be diagnosed correctly. There was of course no cirrhosis of the liver in these earlier cases, and the parasites were frequently less than a quarter of an inch long. Treatment with "Danistol," male fern, prepared according to Marek's formula, and physiologically standardised by him, had given excellent results in the hands of the speaker. This preparation had removed all the flukes present in 30 test animals. The doses recommended by the manufacturers should be strictly followed, and the individual sheep must be weighed.

On the subject of prevention, recent research had provided us with an excellent weapon for the destruction of the snail. While investigating the effect of certain chemicals on *Limnaea truncatula*, Mr. Daubney had been struck by an observation quoted in Pilseneers (1917) Monograph of Molluscs, that the opening of copper mines in certain Corsican hills during the early seventies had resulted in the disappearance of *Limnaea truncatula* from streams draining those hills. Copper sulphate was accordingly tried in the laboratory, and it was found that exposure of specimens of *Limnaea truncatula* to the action of copper sulphate for a period of forty-eight hours in dilutions as high as 1 : 1,500,000 was successful in destroying all the snails. About this time Chandler (1921) in America published a paper pointing out the high degree of toxicity of copper sulphate for various species of snail. It was of course, not possible in America to test this drug against *Limnaea truncatula*. since this species does not occur. Field experiments reported to the Council of Agriculture for Wales in 1921, had shown that spraying a 1 per cent. solution of copper sulphate was most effective in removing the snails from infested farms. One farm, which, within the recollection of the present farmer, had never been free from fluke, was free after one spraying in 1921, and had remained free until last winter. This work had been confirmed by the subsequent experiments of Mr. Walton of Bangor University.

A Note on Scrapie.

The visitors next broke up into small parties for a tour of inspection, and then followed tea. There was now but little time left and a return was made to the library, where cases of scrapie and swing back were shown on the cinematograph. Sir Stewart Stockman said that the pictures had been taken by members of the staff at the laboratory. He added a few remarks on scrapie. It was, he said, a matter of speculation whether it was due to hereditary transmission or congenital infection, which took two years to develop. His own opinion, on the evidence so far available, was that it was congenital infection, transmitted either by the sire or the dam, but usually the dam. At two years old (usually), the sheep that was infected began to scrape and rub about the loins, and then it grew thinner and thinner. Most of the victims died in six months at most, and very few recovered.

Vote of Thanks.

The President, before the party left, proposed a vote of thanks to Sir Stewart Stockman and the officers of the laboratory for the great kindness they had shown to everybody that day. They had been afforded an intellectual treat, and they were only too sorry that the time at their disposal was so short.

The Hon. Secretary, in seconding, said that when he asked Sir Stewart Stockman if they might come to Weybridge, he fell in with the proposal most heartily and told him to invite as many friends as he liked. They had had a most delightful time and they would go away with the happiest recollections of their visit.

The only fault was that the programme had been hurried and that there was so much to see in too short a time. He hoped Sir Stewart and his staff would accept their sincere thanks for a splendid entertainment..

The vote of thanks having been enthusiastically carried,

Sir Stewart Stockman briefly replied. He said it had been a great pleasure to him and his staff to entertain them and he agreed that it was unfortunate that there was too much for them to get through in an afternoon. They had seen sufficient, however, to give them some little idea of what was going on at Weybridge, and the necessity for research by the veterinary profession. This was not the only institution of its kind in Britain, but it was the first. He was pleased to see others rising. There would be one at Camden Town, one at Cambridge and one in Scotland. The veterinarian, in the matter of research, if he cared to take the opportunity, had now come into his own. When he was a young man, research work meant poverty. At least, that was his experience, but thanks largely to the action of the Ministry of Agriculture it was now possible for the veterinary graduate to take up research work under ideal conditions and in circumstances which did not exist when the older members of the profession had just left College.

The gathering then broke up.

H. J. Dawes, *Hon. Secretary.*

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest in these columns.

Diary of Events.

Dec. 8th—R.C.V.S. Written Examinations—Membership Diploma.
General Meeting of the Association for the purpose of voluntary liquidation.

Dec. 11th—R.C.V.S. Oral Examinations commence in Dublin.

Dec. 23rd—Confirmatory General Meeting of the Association.

1925.

Jan. 1st—Nominations for election to Council R.C.V.S.

Jan. 7th—Foreign Voting Papers R.C.V.S. issued.

Jan. 7th—R.C.V.S. Examination Committee, 2 p.m.

Jan. 8th—R.C.V.S. Committee Meetings, 11 a.m. to 1 p.m., 2 p.m. to 5 p.m.
Victoria Veterinary Benevolent Fund Council, 5 p.m.

Jan. 9th—Publication Committee R.C.V.S., 11 a.m.
Finance Committee R.C.V.S., 12 noon.
R.C.V.S. Council Meeting, 2 p.m.
R.C.V.S. Special Council Meeting, 3-30 p.m.

Jan 22nd—R.C.V.S. Special Council Meeting (probable date).

At a recent meeting of the Royal Counties Division, Major P. J. Simpson resigned from the position of Honorary Secretary, after acting for some fourteen or fifteen years with great success. He is succeeded by Major Robin Catmur, of Abingdon, who will enter upon his duties, finding the Society increasing both in membership and popularity. We wish him a very pleasant and prosperous term of office.

* * * *

At the same meeting, Professor G. H. Wooldridge was unanimously elected President for the ensuing year—an honour which all members of that Society will welcome as well-deserved, owing to the keen interest which he has always taken in the Society, and his constant readiness to bring forward clinical cases and other subjects of special interest.

* * * *

The £150,000 cheque case has at last come to an end, after causing more sensation than any other notorious case for many years past. It is interesting to note that C. E. Robinson, the plaintiff (alias Charlie Bloomfield), was stated to be the son of a veterinary surgeon.

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We want more clinical articles.

* * * *

It is proposed that the President of the Association should be provided with proper insignia of office and that early steps be taken to provide at least a chain which could be worn at all meetings. It has certainly been a defect at past Congresses that there has been nothing to distinguish the President from any other member of the assembly, and we hope the proposal will soon materialise.

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It would be of much assistance to the General Secretary, if Secretaries of Divisions would send him a list of the members of their Divisions, so that the records of the Association may be posted up to date.

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Mr. George Wilson, D.V.S.M., M.R.C.V.S., of Hawick, has been appointed Assistant in the Animals Diseases Research Department of the Ministry of Agriculture of Northern Ireland. Mr. Wilson is a graduate of the Royal (Dick) Veterinary College, Edinburgh.

Royal College of Veterinary Surgeons.

Obituary.

Stableforth, W. P., F.R.C.V.S., Stanhope House, Honiton, Devon. Graduated Edinburgh, May 22nd, 1897. Died November 21st, 1924.

Lindsay, W. D., M.R.C.V.S., Croft Villa, Broadway, Worcester. Graduated N. Edinburgh, December 19th, 1903. Died November 22nd, 1924.

Errata.

The Paragraph headed "R.C.V.S. Diploma in Tropical Medicine" on page 1021 should read "R.C.V.S. Fellowship Diploma."

The photograph on page 1018 of our issue of November 29th illustrating impaction of the cæcum was unfortunately inserted "upside down."

Foot-and-Mouth Disease in California.

The method of eradication adopted by the United States Government has kept that country free from foot-and-mouth disease, except for occasional invasions. Previous outbreaks occurred in 1902, 1908 and 1914, and the most recent outbreak commenced at the end of February this year. The method practised is similar in principle to that employed in Great Britain, and consists of prompt slaughter of all affected and contact susceptible stock, combined with control of movement into, within or out of a surrounding scheduled or " quarantined " area.

The successful eradication of disease in previous outbreaks in the United States has fully justified the slaughter policy, and in the recent outbreak the entire cost of eradicating the disease promises to be extremely small when compared with losses occurring annually in countries where the disease is endemic. The vigorous action of the Government appears to have succeeded in overcoming the disease in California, and the situation at the end of August was very favourable for its early eradication.

During May the disease reached Orange County, which is separated from the Mexican border by only one county. Had Mexico become infected it is possible that the disease there would have become endemic, and Mexico would have become a reservoir of disease from which the United States could be periodically invaded.

In brief, the history of the present outbreaks is as follows: Foot-and-Mouth disease first appeared in the vicinity of Oakland on 26th February, and the rapid spread of infection in the three original counties of Alameda, Contra Costa and Solano was traceable in nearly every instance to the movement of persons or live stock. Five counties were " quarantined " by order of the United States Department of Agriculture, which imposed restrictions on the movement of susceptible stock and also of carcasses, hides, wool, hay and straw and similar fodder.

On 22nd March disease was discovered in a large herd of cattle in a semi-range district in Merced County. Infection is thought to have been conveyed there from Contra Costa County by human agency. San Francisco, San Joaquin, Kern and Los Angeles Counties became infected through the movement of animals for slaughter from Merced just before the discovery of disease there. From these new foci infection continued to spread and on 8th June the total number of counties in which disease had appeared numbered 16.

The outbreak in the three original counties was soon brought under control, no case occurring after 23rd March, except in Contra Costa. In that county the last case was on 7th May, and the continuation of disease was due to stray animals in a very broken section of the county. This section was finally cleared by 11th May.

At mid-September no case of the disease had been recorded in the State since the middle of June, except in the counties of Los Angeles and Tuolumne. Tuolumne County has presented unusual difficulties in the work of eradication throughout the entire outbreak. This is due to the wild and rugged character of the district, which contains forests, canyons and high mountain peaks, and transit is largely by horse. Even in this county, however, all known diseased herds have been slaughtered and buried. The range cattle in the less accessible parts are surrounded by " pickets " and a large force of veterinary surgeons working from a central camp is constantly engaged on the work of inspection. The total number of animals slaughtered as affected or exposed to infection during this outbreak in California up to 14th September is 107,805, comprising 57,557 cattle, 21,014 pigs, 28,397 sheep and 837 goats.

On 26th September an outbreak of the disease occurred on a ranch in Harris County in the coast region of Texas, an area of some size being found affected. Four counties have been quarantined, and some 3,000 animals slaughtered in this area.

Dr. R. Mohler, Chief of the Bureau of Animal Industry, United States Department of Agriculture, in a notice to the Press deals with this subject as follows :—

" The most serious obstacle to the work, surprising as it may seem, is the recklessness of many livestock owners in admitting cattle buyers and traders to their premises. The quarantine guards, though sufficient in number for enforcing all reasonable quarantine measures, obviously cannot control the movements of all persons. In several instances the disease has appeared soon after cattle buyers from an exposed region visited farms that were at a safe distance from the nearest infection. In one instance it was necessary to quarantine an entire county because infection had appeared as the result of this practice.

" The chief aid which the livestock industry can give to the speedy eradication of foot-and-mouth disease is more thorough co-operation in stopping visiting and travel in the neighbourhood of infected or exposed premises. The risk cannot be emphasised too much."

—*Journal of the Ministry of Agriculture.*

Inside the Cage.

Those who are interested in the psychology of animals are so seldom provided with any facts upon which they may construct theories that they will be grateful for the scrap of evidence given by the captive lions which the Emir of Katsina recently visited at the Zoo. They and the hyænas and jackals, which, as all know to their humiliation and embarassment, " usually take no notice whatever of visitors," were highly excited when the Emir and his party came opposite their cages. " The lions, in particular, which were lying placidly in the sun in their outdoor cages, rose up, began to growl, followed with their eyes every movement of the native chiefs, and from time to time made springs at the bars." The Emir himself was not surprised. The lions knew, he said, that " we are accustomed to hunt them " ; and whether we accept or reject his explanation of their unusual behaviour, the behaviour itself, which is desrcibed as a " remarkable and definite feature of his visit," is certainly to be regarded as a window, opened for a moment, into those dark mysterious, and, it may be, sorrowful minds which, in the Zoo, are ordinarily hidden from all observers.

Few things are more remarkable than the reticence of most animals, wild or tame. " Of course they are reticent," we say lightly, " for they have no language in which

they may communicate with us." But is that explanation enough? Many have found it difficult to believe that two created groups, men and beasts, each with intelligence, initiative, and inventive power, should have lived so long in association without establishing some fairly general and accurate code if both had desired to establish it. It is not as if we were so far separate in Nature from the beasts that no sort of intimacy was possible. There is intimacy, often a deep affection; there is even, up to a point, communication by which, within certain limits, we and they may make our wishes known. These limits men have long wished to extend. Passing beyond the mere parrot-noises of command or anger, they talk to their animals and sometimes believe that they are understood. Perhaps they are. Dogs have a hundred gestures in which they seem to share human grief and joy; they and other animals can be very highly trained; we often declare that they "seem to know what we were saying or thinking." But he would be a bold man who pretended to know, in more than the crudest outline, what they say or think. After generations of domesticity cats have scarcely told us more of themselves than tigers. In the Zoo, in the stables, and at our own fireside there is the same eternal aloofness. Now and then there are signs which we interpret as pleasure, wrath, or fear; but the rest is silence, and, it would seem to some, a voluntary, determined,even contemptuous silence. If animals wished to tell us their thoughts, would not evolution, it is objected, long ago have brought them at least a little way on the path towards communication? It is not flattering to believe that they consider all the chatter of the world as unworthy of a reply. We may, if we like, console ourselves by believing that they are very primitive and stupid and incapable of subtle thought. While we stand, with paper-bag in hand, peering at their captive tragedy, we may pretend that the great beasts disregard us because they feel themselves to be divided from us by a measureless inferiority. There is, however, an opposite explanation which we should do well to consider while we volubly patronize the lion.—*The Times.*

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinionsof his correspondents.

Meat and Milk Inspection and the Profession.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—As a result of my letter in the *Record* of 28th June, *re* the above, several of your readers have written to me, asking what I consider the most suitable books on Meat and Milk Inspection. Some of the gentlemen seem to think that all they have to do is simply to purchase a few books on these subjects, study them, and all will be well. They do not realize the seriousness of their position, and that unless the practitioners combine in one solid body to defeat this attempted infringement of the right of every practitioner, they may waken some morning to find that others are doing this work, and then they may scrap every book on milk which they may have in their possession.

I do not pose as an authority on books, but, for the benefit of those who wish to extend their knowledge on these subjects, the following, along with the others which they already possess, should be found quite useful, viz.:—

Lane, Claypon: *Milk and its Hygienic Relations.* Longman's & Co.

Klein: *Principles and Practice of Milk Hygiene.* J. B. Lippincott Co., London.

Elmer V. McCallum: *The Newer Knowledge of Nutrition.* MacMillan & Co., 1923.

Park: *Public Health and Hygiene.* Lea & Febiger, Philadelphia.

Calmette: *Tuberculosis and T.B. in Man and Animals.* Williams & Wilkins.

Orla Jensen: *Dairy Bacteriology.* J. & A. Churchill, London.

Reports of the Astor Milk Committee, 1917 to 1919. Government Publication.

Stalker: *The Laws, Orders and Regulations relating to Milk and Dairies in Scotland.* William Hodge & Co., Ltd.

Ostertag: *Meat Inspection.* Balliere, Tindall & Cox.

Leighton: *Meat Inspection.* William Hodge & Co., Ltd.

So far as I can recollect, no present whole-time inspector has ever given what might be called a serious contribution to the subject, their statements being, for the most part, as Colonel Brittlebank has well said, "a reiteration of home truths which have been uttered apparently in vain for many years past." I should, however, advise everyone to read Mr. Gofton's articles carefully. Mr. Gofton may not be a specialist on these subjects yet, but he is certainly on the way to become one. He is reported to have said at the Perth meeting (*vide Record*, 5th July), that "he was *becoming more and more strongly impressed* with the importance of the study of nutrition in the maintenance of general health in a herd consisting of animals giving high milk production." This has been realized and recognised by practitioners and dairymen for a number of years, with the result that a few of the more progressive dairymen, acting on the advice of their practitioners, have adopted different systems of diet. At the continued discussion of Mr. Trevor Spencer's paper, Mr. Hugh Begg, a whole-time inspector, apparently was surprised at the amount of knowledge and interest displayed by Mr. Spencer, a practitioner of thirty-four years' standing.

Practitioners have been recommended, of course, by inspectors, to preach the gospel of clean, wholesome milk everywhere,—aye, and even when attending a lame horse I am taking the hint and, believing there is a time and place for everything, am arranging to give a series of short lectures during the incoming winter. But I am also taking very good care to impress upon my clients and the public at large, that the first line of defence between the public and the tubercular cow is the veterinary practitioner rather than the veterinary inspector, and that although the Dr... Sc. man may be the specialist in the laboratory, when it comes to the clinical examination of an animal, the practitioner is the specialist every time. Further, it is seldom a practitioner is absent from a dairy herd for a longer interval than one month, and I should think that a clinical examination of the animals on the occasion of these monthly visits would be a much greater safeguard to the public, than an annual or bi-annual inspection by any inspector, however foreseeing that individual might be.

—Yours faithfully, ADAM KERR.

Fernbank,
Ellon.

The Etiology of Milk Fever.

To the Editor of The Veterinary Record.

Sir,—The article entitled "The Etiology of Milk Fever in Cattle" is of especial interest to country practitioners, as it opens up an entirely new line of thought, whilst at the same time it adds one more theory to the present list, which, if already large, holds nothing very convincing.

There are, however, a few points, clinical as well as physiological, in Mr. Pugh's article which are worthy of discussion, as they appear to have an important bearing on the probabilities of the case, and there are also certain facts taken for granted, which in the light of our own experience, are open to criticism.

Under circumstance two, the writer states that milk fever is rare before the completion of labour,and occurs most frequently during the first forty-eight hours of the puerperium.

Now, in the particular locality in which our practice is situated, one of the finest dairy districts in the country, milk fever is by no means rare before parturition; in fact, milk fever, or a condition clinically indistinguishable, is exceedingly common, so much so that an average of one case in every four or five appears to have no connection whatever with the act of parturition. It is not rare to meet with cases presenting all the characteristic symptoms, and responding in the same characteristic manner to treatment in barren cows tied up to feed; it is common in cows "dry" some weeks before calving, and it is equally prevalent in cows which have calved several months, and in which the super-lactation attendant upon parturition has long ceased.

In none of these instances does it seem probable that any sudden increased demand is made upon the body to supply an extra amount of fat for conversion into butter fat.

It is also worth remembering that milk fever is invariably ushered in by a partial or complete *cessation* of lactation, which may commence from a few hours to a few days before any symptoms of unsteadiness appear, and it is usually remarked by the owner that the cow which develops the condition "has not come in with her usual show," which implies that the udder has been more flaccid and yielded less milk than at previous parturitions.

It is admitted that cows yielding a high percentage of butter fat are more liable to be affected than those producing thin watery milk, even when the total yield is far less in the former than in the latter, but in both types of animal the same sudden demand for an increased output occurs at the time of calving, and if, as Mr. Pugh suggests, milk fever is due to a breakdown of the fat-transferring mechanism, it seems probable that the effects would be more severely felt in the animal that normally produced little butter fat than in the one which was constantly producing it in quantity, and whose mechanism was thoroughly tuned to the task.

Circumstance three is not in accordance with the results of our own experiments. We have repeatedly kept cows liable to attack short of food for weeks prior to parturition, and have come to the conclusion that such efforts are waste of time, and have no influence on preventing milk fever. We frequently meet with cases in very thin cattle, and have noticed that such animals are far less likely to make a speedy recovery, and are more subject to complicating disorders.

Neither is inflation essential, although it is advisable. Not many years ago, when injection was first introduced, the injection of air was "taboo." The custom was then to milk out probably a pint of milk or less from each quarter, and replace it by half a pint of water containing an antiseptic. The latter may be discarded, and the result remains the same; the cow recovered, sometimes more slowly than with present-day inflation, but the fact remains—that a *little* water injected into the udder cures even when the total volume injected is less than that of the milk withdrawn.

Neither does our experience prove that it is necessary to inflate the whole of the quarters. In severe cases, when it has been inadvisible from heart weakness to lay the cow flat on her side, we have found that inflation of three quarters and, in several cases, of the two uppermost only, has been sufficient to bring about recovery in a few hours —Yours truly, R. H. Smythe, M.R.C.V.S.

Camborne,
30*th November*, 1924.

At the 82nd annual meeting of the Farmers' Club in London on Monday, 8th December, Professor J. B. Buxton, F.R.C.V.S., will read a paper entitled, "Is it advisable that the Tuberculosis Order of 1914 or some amendment thereof should be made operative?"

The Editor acknowledges the receipt of the following:—

Annual Administration Report of the Bombay Veterinary College and Civil Veterinary Department in the Bombay Presidency for the official year 1923—24.

Annual Report of the Civil Veterinary Department, United Provinces.

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